

CLAIMS

1. A carbon-containing aluminum nitride sintered body comprising: carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon; in a matrix made of aluminum nitride.
2. The carbon-containing aluminum nitride sintered body according to claim 1, wherein: said carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon, is at least one of amorphous carbon, and carbon forming solid solution in the phase of aluminum nitride crystal.
3. The carbon-containing aluminum nitride sintered body according to claim 1 or 2, wherein the content of said carbon is from 200 to 5000 ppm.
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4. A carbon-containing aluminum nitride sintered body comprising both of:
carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon; and
carbon whose peak can be detected thereon; in a matrix made of aluminum nitride.
5. The carbon-containing aluminum nitride sintered body according to claim 4, wherein:
said carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon, is at least one of amorphous carbon, and carbon forming solid solution in the phase of aluminum nitride crystal; and
said carbon whose peak can be detected thereon is

crystalline carbon.

A1 6. The carbon-containing aluminum nitride sintered body according to claim 4 or 5,

5 which comprises both of crystalline carbon and amorphous carbon.

7. The carbon-containing aluminum nitride sintered body according to any of claims 4 to 6,

10 which comprises said carbon in a total amount of 200 to 5000 ppm.

8. The carbon-containing aluminum nitride sintered body according to any of claims 1 to 7,

15 wherein said matrix contains a sintering aid comprising at least one of an alkali metal oxide, an alkali earth metal oxide, and a rare earth oxide.

S A2 9. The carbon-containing aluminum nitride sintered body according to any of claims 1 to 8,

20 wherein its brightness defined in JIS Z 8721 is N4 or less.

10. A ceramic substrate for a semiconductor-producing/examining device,

25 wherein: a ceramic substrate comprising carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon, is provided with a conductor.

30 11. The ceramic substrate for the semiconductor-producing/examining device according to claim 10,

wherein: said carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon, is at least one of amorphous carbon, and carbon

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forming solid solution in the phase of ceramic crystal.

12. The ceramic substrate for the semiconductor-producing/examining device according to claim 10 or 11,
5 wherein the content of said carbon is from 200 to 5000 ppm.

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13. A ceramic substrate for a semiconductor-producing/examining device,
10 wherein a ceramic substrate: comprising both of:
carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon; and
15 carbon whose peak can be detected thereon,
is provided with a conductor.

14. The ceramic substrate for the semiconductor-producing/examining device according to claim
20 13,
wherein:
said carbon whose peak cannot be detected on its X-ray diffraction chart or whose peak is below its detection limit thereon, is at least one of amorphous carbon, and carbon forming
25 solid solution in the phase of aluminum nitride crystal; and
said carbon whose peak can be detected thereon is crystalline carbon.

15. The ceramic substrate for the semiconductor-producing/examining device according to claim 13
30 or 14,
wherein the content of said carbon is from 200 to 5000 ppm.

- 35 16. The ceramic substrate for the

semiconductor-producing/examining device according to any of claims 9 to 15,

wherein said ceramic substrate contains a sintering aid comprising at least one of an alkali metal oxide, an alkali earth metal oxide, and a rare earth oxide.

17. The ceramic substrate for the semiconductor-producing/examining device according to any of claims 9 to 16,

10 wherein its brightness defined in JIS Z 8721 is N4 or less.

18. The ceramic substrate for the semiconductor-producing/examining device according to any of claims 9 to 17,

15 wherein:

said conductor is an electrostatic electrode; and
said ceramic substrate functions as an electrostatic chuck.

20 19. The ceramic substrate for the semiconductor-producing/examining device according to any of claims 9 to 17,

wherein:

25 said conductor is a resistance heating element; and
said ceramic substrate functions as a hot plate.

20. The ceramic substrate for the semiconductor-producing/examining device according to any of claims 9 to 17,

30 wherein:

said conductor is formed: on a surface of the ceramic substrate; and inside the ceramic substrate;

said inside conductor is at least one of a guard electrode and a ground electrode; and

35 said ceramic substrate functions as a wafer prober.